

Claims

- Sub
C1
- [c1] 1. A welding apparatus for a welding process in a straight polarity configuration comprising:
a welding gun having means for feeding an electrode into the welding gun;
the electrode comprising a sheath encapsulating a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and
a power source supplying electrical current to the electrode.
- [c2] 2. The welding apparatus of Claim 1, further comprising a gas source supplying a shielding gas to the welding apparatus.
- [c3] 3. The welding apparatus of Claim 1, wherein the welding process is gas metal arc welding.
- [c4] 4. The welding apparatus of Claim 1, wherein the means for feeding the electrode into the welding gun comprise a wire drive and a wire reel.
- [c5] 5. The welding apparatus of Claim 1, wherein one or more compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .
- [c6] 6. The welding apparatus of Claim 5, wherein the combination is selected from the range from about 0.3% to about 5.0%.
- [c7] 7. The welding apparatus of Claim 2, wherein the shielding gas comprises a mixture of Ar and CO_2 .
- Sub
C2
- [c8] 8. A wire comprising a sheath encapsulating a core having a core composition, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight.

- [c9] 9.The wire of Claim 8, wherein the compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .
- c10] 10.The wire of Claim 8, wherein the combination of graphite and one or more compounds of potassium in the core composition is selected from the range of about 0.3% to about 5% by weight.
- [c11] 11.The wire of Claim 10, wherein the compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .
- [c12] 12.A process of manufacturing a metal-cored wire comprising:
shaping a metal sheath into a fillable shape;
filling the sheath with a core composition to form a core, the core composition comprising a combination of graphite and one or more compounds of potassium, the combination not exceeding approximately 5% by weight; and
encapsulating the core by the sheath to form a metal-cored wire.
- [c13] 13.The process of Claim 12, wherein the compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .
- [c14] 14.The process of Claim 12, wherein the core composition is a powder.
- [c15] 15.The process of Claim 12, wherein the combination is selected from a range of about 0.3% to about 5.0% by weight.
- [c16] 16.The process of Claim 15, wherein the compounds of potassium comprise K_2MnTiO_4 and K_2SO_4 .
- c17] 17. A welding process in a straight polarity configuration comprising:
providing a welding apparatus having means for feeding an electrode into the welding apparatus and means for supplying a shielding gas into the welding apparatus;
coupling the welding apparatus to a power source in the straight polarity configuration and forming an arc;
feeding the electrode into the welding apparatus, the electrode comprising a sheath and a core having a core composition, the core composition comprising a combination of graphite and

one or more compounds of potassium, the combination of graphite and compounds of potassium in the core composition not exceeding approximately 5% by weight; and supplying the shielding gas into the welding apparatus to shield the electrode and the arc.

- [c18] 18.The welding process of Claim 17, wherein supplying the shielding gas into the welding apparatus comprises providing an external gas source.
- [c19] 19.The welding process of Claim 17, wherein feeding the electrode into the welding apparatus comprises providing means for feeding the electrode that is external to the welding apparatus.
- [c20] 20.The welding process of Claim 17, wherein supplying the shielding gas comprises providing a mixture of Ar and CO₂.
- [c21] 21.The welding process of Claim 17, wherein the welding process is a gas metal arc welding process.
- [c22] 22.The welding process of Claim 17, wherein one or more compounds of potassium comprise K₂MnTiO₄ and K₂SO₄.
- [c23] 23.The welding process of Claim 22, wherein the combination is selected from the range from about 0.3% to about 5.0%.

BR
BI BROWN
RUDNICK
BERLACK
ISRAELS LLP

One Financial Center
Boston, Massachusetts 02111
617.856.8200
fax 617.856.8201
www.brownrudnick.com

Fax
Facsimile

DATE February 26, 2003

THIS TRANSMISSION CONSISTS OF THIS COVER SHEET AND 3 PAGE(S)

ORIGINAL DOCUMENT TO FOLLOW: YES ☐ NO ☒

If you do not receive all pages, please call Office Services at 617.856.8200

FAX NUMBER 1-703-872-9418

ATTENTION OF Alexandra Elve

TELEPHONE NUMBER 1-703-308-0092

FROM Maria Eliseeva

DIRECT DIAL 617.856.8340

C/MA # 22176/3/2335

MESSAGE Serial Number 09/683,584,
Filed: January 22, 2002,
Inventor:Anthony Nikodym

Attached are 3 substitute sheets with the claims as originally filed. A numeral 1 was inserted before the first claim to specify the claim number.

CONFIDENTIALITY NOTICE

The documents accompanying this fax transmission contain information from the law firm of Brown Rudnick Berlack Israels LLP which is confidential or privileged. The information is intended to be for the use of the individual or entity named on this transmission sheet. If you are not the intended recipient, be aware that any disclosure, copying, distribution or use of the contents of this faxed information is prohibited. If you have received this fax in error, please notify us by telephone immediately so that we can arrange for the retrieval of the original documents at no cost to you. Thank you.

Alexandra House
Bellebridge, Dublin 4 IRL
+353.1.864.1738
fax +353.1.864.1838

CityPlace 1
Hartford, CT 06103
860.509.6500
fax 860.509.6501

8 Clifford Street
London, W1S 2LQ UK
+44.20.7851.6000
fax +44.20.7851.6100

120 West 45th Street
New York, NY 10036
212.704.0100
fax 212.704.0196

121 South Main Street
Providence, RI 02903
401.276.2600
fax 401.276.2601

Received from <617 856 8201> at 2/26/03 5:32:45 PM [Eastern Standard Time]